DOCUMENT RESUME

ED 322 414 CG 022 685

AUTHOR Hoyt, Kenneth B.
TITLE The Changing Face of the Workplace: 1986-2000.
PUB DATE 88
NOTE 10p.
PUB TYPE Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Career Development; *Change; *Educational Needs; *Education Work Relationship; *Employment Opportunities; Trend Analysis; *Work Environment

ABSTRACT

This document attempts to draw attention to the kinds of baseline data required for drawing conclusions regarding the changing workplace, to illustrate use of key Department of Labor (DOL) documents in searching for answers to some changing workplace questions, and to correct some common myths regarding education/work relationships predicted to exist by the year 2000. It notes that career development professionals need to know how to determine if a particular statistic is accurate and how data should be interpreted. The DOL is identified as the most reliable source of data on the changing workforce and the changing workplace. Four DOL publications that are especially important data resources are noted: the Occupational Outlook Handbock, Occupational Projections and Training Data, Occupational Outlook Quarterly, and the Monthly Labor Review. Basic ways to examine and discuss occupational change are presented, and information is given on the fastest growing occupations and the occupations predicted to add the most new jobs during the years 1986-2000. Other data are used to examine the amount of education that will be needed to qualify for jobs in the years 1986-2000. In connection with this education/work relationship controversy is a section on high school vocational education and the changing workplace. Additional topics to be addressed are listed. (NB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

THE CHANGING FACE OF THE WORKPLACE: 1986 - 2000

Kenneth B. Hoyt
University Distinguished Professor of Education
Kansas State University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Kenneth B. Hoyt
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED322414

Introduction

The topics of (a) the changing workplace and (b) the changing workforce, while obviously related, call for quite different kinds of data. Recently, I published an article aimed at discussing the changing workforce (Hoyt, 1988). The purpose of this paper will be to complement the data in that article by concentrating attention on the changing workplace.

To illustrate the complexity of the topic, consider the question: "WHAT DO THE FOLLOWING STATEMENTS HAVE IN COMMON?"

- - In the 1990s, the average education needed for employment opportunities will be 13.7 years.

- - By the Year 2000, jobs for high school dropouts will be scarce

- - Almost all new jobs being created today are in service occupations

- - High tech will make secretarial jobs obsolete

The answer is: EACH OF THESE STATEMENTS IS FALSE. Yet, these and other false statements appear with great regularity in the popular press - and sometimes even in the professional literature.

Career development professionals need to know how to determine if a particular statistic is accurate and how each should be interpreted. This paper aims to provide some background information required to carry out this responsibility.

Data Sources

The United States Department of Labor is the most reliable source of data regarding both the changing workforce and the changing workplace. Four of their publications are especially important data resources and should be part of the working library of every career development professional. They include:

Occupational Outlook Handbook. Published every other year, this document (commonly referred to as the OOH) summarizes current status and predicted future status of about 225 occupations - comprising about 80 percent of all jobs in the economy. The Appendix contains summary information about 125 additional occupations which, collectively, account for about 10 percent of jobs.

Occupational Projections and Training Data. This is also published every other year as a supplement to the OOH described above. It provides basic data showing the basis on which projections found in the OOH were made. Many career development professionals will find continuing need for the data showing the percentage of workers in each occupation whose major training for their job was: (a) a college degree; (b) some college; (c) high school vocational education; and (d) employer training.

CG 022685

BEST COPY AVAILABLE

Occupational Outlook Quarterly. Published four times per year, this serves as a supplement to the OOH. Some issues contain summaries in chart/graph form of data taken from the OOH. Others take a specific occupational area and go into more depth than can be found in the OOH regarding its current status and likely future. Still other articles are of general interest to career development specialists.

Monthly Labor Review. This publication combines statistical data with careful interpretations of such data by U.S. Department of Labor (DOL) experts. Topics covered include the economy, the major industries, the changing workforce, and the changing workplace.

All of these documents are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Careful study of their contents is the best hope career development professionals have of acquiring the kinds of accurate knowledge needed to combat the many popular, but false kinds of "scare statistics" now common in the popular press.

The Changing Workplace: The Big Picture

In 1986, the total labor force was 111.6 million. By the year 2000, it is expected to be 133 million persons, an increase of 19 percent (Silvestri & Lukasiewicz, 1987). This is only about half the 35 percent increase that took place between 1972 and 1986 when 31 million persons were added to the labor force (Fullerton, 1987). Contrary to popular belief, the rate of change in number of persons in the labor force is becoming less, not greater as we move toward the Year 2000.

One obvious way of looking at change in the workplace is to examine changes in the number of workers expected in each occupation. All DOL "change" statements regarding predicted numbers of workers during the 1986 - 2000 period are made based on this expected overall increase of 19 percent. Thus, if, in a given occupation, the change was much greater than 19%, it would be described as "faster than average" while, conversely, if the figure is much less than 19%, it would be described as "slower than average". The DOL has its own phrases for use in describing occupations by the rate at which their number of workers in expected to grow (Fountain, 1987). When you see one of the following statements in a DOL publication pertaining to predicted changes during the 1986 - 2000 period, this is what it means:

If the statement reads	Employment is projected to
"grow much faster than average"	Increase 35% or more
"grow faster than average"	Increase 25-34%
"grow about as fast as average"	Increase 14 - 24%
"grow more slowly than average"	Increase 5 - 13%
"show little change"	Increase/Decrease 4% or less
"decline"	Decrease 5% or more.

The other basic ways in which the topic of occupational change can be meaningfully discussed are to study data related to: (a) new occupations to be created that never before existed; and (b) changes in performance requirements taking place within currently existing occupations. Knowing that most of the 21 million new work force members will find jobs in

currently existing occupations, it is clear that completely new occupations will have only a very small influence on total occupational change. On the other hand, the topic of internal changes within currently existing occupations, especially those brought about by the use of high technology, is a major area to study when questions of occupational change are pursued.

The "Fastest Growing" vs The "Most Jobs" Controversy

Career development professionals need to be equally concerned and equally knowledgeable regarding both (a) the fastest growing occupations and (b) the occupations predicted to add the most new jobs during the 1986 - 2000 period. The career decisionmaking process would, of course, be much easier if these turned out to be one and the same. Unfortunately, almost exactly the opposite condition exists - i.e., there is almost no overlap between those occupations expected to "grow fastest" and those expected to create the "most job openings". While this may appear strange at first glance, it is easily explained when one considers that: (a) most of the "fastest growing" occupations are relatively new and relatively small in terms of total numbers of workers thus making it easy to demonstrate large percentage growth figures; and (b) most of the occupations predicted to have the "most jobs" are older, well established occupations currently employing large numbers of workers thus making it extremely difficult for them to show a high percentage change in workers in spite of large numbers.

The Spring, 1988 issue of Occupational Outlook Quarterly features an article (Kutscher, 1988) containing, among other things, two tables - one containing data on the 27 occupations expected to have the largest job growth between 1986 and 2000 and the other containing data on the 20 occupations expected to grow fastest during this period of time. To make comparisons, only the top 20 occupations with the largest predicted job growth are used along with the 20 fastest growing occupations.

When data in these two tables are compared, it can be seen that:

1. The 20 fastest growing occupations combined will account for only 6.8% of projected job growth during the 1986 - 2000. This is a total of 1,437,000 of the 21 million predicted new jobs. These occupations are:

Legal Assistant	Medical Assistant
Physical Therapist	Physical Therapist Assistants/Aide
Data Processing Equipment Repair	Homemaker-home Health Aide
Podiatrists	Computer System Analyst
Medical Record Technician	Employment Interviewer
Computer Programmer	Radiologic Technologist/technician
Dental Hygienist	Dental Assistant
Physician Assistant	Operations Research Analyst
Occupational Therapist	Peripheal Electronic Data Processing Equipment Operator
Data entry keyers, Composing	Optometrists

2. The single occupation expected to add the most jobs during the 1986 -2000 period - "Retail Salesperson" - will account for 5.6% of projected job growth (1,201,000 jobs). This is almost as great as the combined total of the 20 fastest growing occupations.
3. The 20 occupations projected to add the largest numbers of new workers during the 1986 - 2000 period, taken as a whole, represent 43.8% of the total projected job growth during this period. These 20 occupations alone are projected to add 9,347,000 of the approximately 21 million new jobs to be created. These 20 occupations include:

Retail Salesperson	Waiter/Waitress
Registered Nurse	Janitor/Cleaner
General Manager/Top Executive	Cashier
Truckdriver	General Office Clerk
Food Counter Worker	Nursing Aide/Orderly/Attendant
Secretary	Guard
Accountant/Auditor	Computer Programmer
Food Preparation Worker	Kindergarten/Elementary Teacher
Computer System Analyst	Restaurant Cook
Receptionist/Information Clerk	Licensed Practical Nurse

When projected job growth in major occupational groups are compared with the expected 19% overall growth (Fountain, 1987), five are projected to grow faster than 19%, three more slowly than 19%, and two are projected to decline. These figures by major occupational group include:

Occupational Group	Expected % Employment Change '86-2000
Executive/Adm./Managerial Workers	29%
Professional Workers	27%
Technicians & Related Support Workers	38%
Sales Workers	30%
Adm. Support Workers (including Clerical)	11%
Service Workers	31%
Precision Production/Craft/Repair	12%
Operators/Fabrictors/Laborers	3%
Agriculture/Forestry/Fishery	-5%

The "How Much Education Will Be Needed?" Controversy

At the 1987 American Vocational Association Convention, Ronald Kutscher (1987), Associate Commissioner, Office of Economic Growth and Employment Projections, U.S. Department of Labor, distributed a series of DOL charts pertaining to projected education/work relationships during the 1986 - 2000 period. Two of these tables were designed to illustrate that:

1. The percent of jobs requiring some form of postsecondary education will increase from 25% to 27%; the percent requiring a high school diploma will decrease from 41% to 40%; and the percent requiring less than a high school diploma will decrease from 34% to 33%.
2. Of the expected 21.4 million new jobs, 37.8% will require some post-secondary education; 35.8% will require a high school diploma, while only 26.4% will require less than a high school diploma. The trend, in terms of new jobs, is definitely in the direction of requiring more education.

When these kinds of data are combined, the following figures emerge in terms of numbers and percentages.

Category	1986	2000	Increase
Total labor force	11.6m.	133.0m.	+21.4m. (19% of increase)
Postsecondary Ed. Required	27.9m. (25.0%)	35.91m. (27.0%)	+8.0m (37.8% of increase)
High School Grad Required	45.76m (41%)	53.2m. (40%)	+7.44m. (35.8% of increase)
Less than High School Required	37.94m. (34.0%)	43.89m. (33.0%)	+5.95m. (26.4% of increase)

The figures presented above lead to a number of observations, each of which helps to provide some data-based answers to the "How much education will be needed?" controversy. These observations include:

1. The general trend toward requiring more education can be seen both in terms of changes in the projected total work force and in the projected new jobs. However, these changes are much more dramatic when only projected new jobs are considered. The percentages don't vary much when the total labor force is considered.
2. The actual numbers of workers in each of the three levels of education are projected to increase for all three categories. Those warning that jobs will become scarce for high school dropouts should note that the number of jobs projected to require less than a high school diploma is projected to increase by 5.95 million between 1986 and 2000. Granted, many would consider the occupations involved to be undesirable career choices. That is not the point. They will exist.
3. Even by the year 2000, more jobs requiring less than a high school diploma (43.89 million) are projected to exist than are jobs requiring any form of postsecondary education (35.91 million). Those who contend that postsecondary education will be required for most jobs in the Year 2000 appear to be wrong.

To put this controversy in perspective relative to the "most jobs vs fastest growing jobs" controversy, it was necessary to consult the 1988-89 edition of the Occupational Outlook Handbook (Bureau of Labor Statistics, 1988). By doing so, the amount of education required for each of the 20 occupations in both lists referred to earlier was determined. The actual page number in the OOH on which the "training required" data can be found is shown below for each occupation. Using these figures, the following observations appear to be pertinent:

1. Of the 20 occupations with the largest predicted job growth during the 1986 - 2000 period:
   a. Five will require less than a high school diploma. These include: (1) Janitors and cleaners (p. 282); (2) Food counter and related workers (p. 267); (3) Nursing aides, orderlies, and attendants (p. 273); (4) Food preparation workers (p. 265); and (5) Restaurant cook (p. 265). Together, these 5 occupations will account for 9.5% of the total projected job growth (2,050,000 jobs).

b. Eight will require no more than a high school diploma. These include: (1) Retail salespersons (p. 221); (2) Waiters and waitresses (p. 268); (3) Cashiers (p. 213); (4) Truckdrivers (p. 398); (5) General office clerks (p. 236); (6) Secretaries (most of them) (p. 245); (7) Guards (p. 261); and (8) Receptionists and information clerks (p. 242). Together, these 8 occupations will account for 21.6% of the projected job growth (4,604,000 jobs).

c. Three appear to require some postsecondary education but generally less than a 4 year college degree. These include: (1) Registered nurses (about half do have 4 year degrees) (p. 151); (2) Computer programmers (p. 204); and (3) Licensed practical nurses (p. 170). Together, these 3 occupations will account for 6.6% of the projected job growth (1,185,000 jobs).

d. Four appear to require a 4 year college degree or more. These include: (a) General managers and top executives (p. 26); (b) Accountants and auditors (p. 14); (c) Kindergarten and elementary school teachers (p. 118); and (d) Computer system analysts (p. 66). Together, these 4 occupations will account for 7.1% of the projected job growth (1,518,000 jobs).

e. Viewed as a package of data, it can be seen that:
   (1) About one-half of the projected new jobs in these 20 occupations will require a high school diploma.
   (2) More of these projected new jobs will require less than a high school diploma than will require either postsecondary subbaccalaurate training or a four year college degree.
   (3) Of those occupations in this list requiring any form of postsecondary education, almost half require training at the subbacalaurate level and slightly over half require four year college degrees.

2. Of the 20 occupations expected to be the fastest growing during the 1986 - 2000 period:
   a. One - Homemaker/home health aide - will require less than a high school education (p. 281). New jobs in this occupation will account for .5% of the total projected job growth (111,000 jobs).
   b. Three will require no more than a high school education. These include: (1) Medical assistants (p. 272); (2) Physical and corrective therapy assistants and aides (Not found); and (4) Data entry keyers. Together, these three occupations will account for .8% of the projected job growth (163,000 jobs)
   c. Eight will require some postsecondary education but, for most jobs, less than a 4 year college degree. These include: (1) Legal assistants (p. 208); (2) Data processing equipment repairers (p. 300); (3) Medical record technicians (p. 172); (4) Computer programmer (p. 204); (5) Radiologic technologists and technicians (p. 176); (6) Dental hygienists (p. 161); (7) Dental assistant (p. 270) ; and (8) Peripheral electronic data processing equipment operators (p. 233). Together, these eight occupations will account for 3.4% of the projected job growth (886,142 jobs).

d. Eight will require at least a 4 year college degree. These include: (1) Physical therapist (p. 144); (2) Podiatrist (p. 132); (3) Computer system analyst (p. 66); (4) Employment interviewer (p. 22); (5) Physician assistant (p. 146); (6) Operations research analysts (p. 70); (7) Occupational therapist (p. 139); and (8) Optometrists (p. 128). Together, these eight occupations will account for 2.1% of the projected job growth (416,000 jobs).

e. Viewed as a package of data, it can be seen that:
   (1) A clear and decisive majority of these jobs will require some form of postsecondary education. Relatively few jobs in the 20 fastest growing occupations are projected to be available to either high school graduates or high school dropouts.
   (2) The largest number of projected job openings in the 20 fastest growing occupations will require postsecondary subbaccalaurate training, not four year college degrees.

High School Vocational Education and the Changing Workplace

Some secondary school educators will be interested in looking at the "How much education will be needed?" controversy from the standpoint of the projected number of new jobs for those occupations in which DOL clasifies in the "high school vocational training is useful" category. Data required to study this topic are found in DOL's publication Occupational Projections and Training Data: 1988 Edition. A total of 22 occupations are listed in this category. Of these, 17 are footnoted to indicate that high school vocational training is not the only way persons can find training for these occupations. These 22 occupations, along with the DOL projections of new jobs to be generated between 1986 and 2000 appears below:

Occupation	Projected No. New Jobs, 1986-2000
Musicians	42,000
Drafters	5,000
Computer Operators/Peripheral Equipment Operators	148,000
Billing, Cost, and Rate Clerks	5,000
Bookkeeping, Accounting, & Auditing Clerks	92,000
Payroll and Timekeeping Clerks	-25,000 (NOTE: A loss)
General Office Clerks	462,000
Receptionists and Information Clerks	282,000
Brokerage and Statements Clerks	30,000
File Clerks	32,000
Secretaries	424,000
Stenographers	-50,000 (NOTE: A loss)
Typists and Word Processors	-140,000 (NOTE: A loss)
Data Entry Keyers	-51,000 (NOTE: A loss)
Statistical Clerks	-19,000 (NOTE: A loss)
Automotive Mechanics	60,000
Machinists	-5,000 (NOTE: A loss)
Tool and Die Makers	8,000
Compositers and Typesetters	-6,000 (NOTE: A loss)
Lithographers & Photoengravers	19,000
Precision Woodworkers	30,000
Printing Press Operators	40,000

Ignoring those occupations listed above expected to experience an actual decline in workers during the 1986 - 2000 period, the data reported above indicate that a total of 1,679,000 of the expected 21.4 million new jobs (7.8%) are in occupations for which high school vocational training is considered useful in preparing for employment. These DOL figures lead to the following observations:

1. DOL did not include any occupations for which health-related occupational training is needed. They appear not to recognize that such training is being done anywhere at the high school level.
2. A large number of projected new jobs for which DOL feels specific high school vocational skills training is evident in Business Education. Numbers reported for all other areas are too low to serve as strong justfication for specific vocational skills training at the secondary school level. The value of general employability skills acquired by high school vocational education students cannot be seen here. These data do not refute the need for high school vocational education.
3. The six occupations projected to actually decline in numbers between 1986 - 2000 serve as clear justification for questioning their specific existance in high school vocational education programs.

Other Considerations

A comprehensive view of the topic, "The Changing Face of the Workplace" would be several times as long as this paper. At a minimum, additional topics to be addressed would include:

1. The influence of technology on changing the nature of essential tasks to be performed within already existing occupations - i.e., one does not have to create new occupations in order to change the workplace.
2. The importance of clearly differentiating between "service occupations" and "service-producing industries" - i.e., while 90%+ of new occupations are projected to be in "service-producing industries", far fewer will be in "service occupations".
3. The continuing growth in small business and relative decline in the proportion of jobs to be found in big businesses.
4. The continuing rapid growth in part-time jobs and in jobs that can be done within the home/family structure rather than at any employer work site.
5. The impact of the international marketplace both on gaining and losing jobs within the United States.
6. The changing meaning of "work" in total lifestyle of American workers - including workplace arrangements reflecting such lifestyle worker problems as child care and the growing importancer of volunteer work.
7. The changing face of organized labor in the United States occupational society.
8. The implications of the fact that "replacement jobs", not "new jobs", are the largest single source of job openings for job seekers to consider.

Those who wish to consider the topic of "The Changing Face of the Workplace" in a comprehensive manner will, at a minimum, find it necessary to devote considerable study to each of these topics.

Concluding Remarks

The basic underlying purposes of this paper have included: (1) an attempt to draw attention to the kinds of baseline data required for drawing conclusions regarding the changing face of the workplace; (2) an attempt to illustrate use of key DOL documents singly and in combination in searching for answers to some "changing workplace" questions; and (3) an attempt to correct some of today's common myths regarding education/work relationships predicted to exist by the Year 2000.

If these attempts have been successful, readers will recognize both: (a) how much more there is to learn; and (b) how easy it is to learn from DOL documents about this topic. If, as a result of studying the contents of this paper, career development professionals are motivated to acquire and use the four basic DOL documents referred to in the paper, this effort will have been well worthwhile.

References

Bureau of Labor Statistics (1988) Occupational outlook handbook. 1988-89 Edition. Bulletin 2300. Washington, D.C.: U. S. Department of Labor

Bureau of Labor Statistics (1988a) Occupational projections and training data. 1988 Edition. Bulletin 2301. Washington, D.C.: U.S. Department of Labor.

Fountain, M. (Editor) (1987) Projections 2000. Occupational Outlook Quarterly, 31(3), Pp. 36.

Fullerton, H., Jr.(September, 1987) Projections 2000: Labor force projections - 1986 tro 2000. Monthly Labor Review. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office.

Hoyt, K. (1988) The changing workforce: A review of projections - 1986 to 2000. Career Development Quarterly, 37(1), 31 - 39.

Kutscher, R. (1988) An overview of the year 2000. Occupational Outlook Quarterly, 32(1), 2 - 9.

Kutscher, R. (1987) Projections 2000: Labor force, economic growth, industry employment, occupational employment. A series of charts and tables. Washington, D.C.: U.S. Department of Labor.

Silvestri, G. & Lukasiewicz, J. (September, 1987) A look at occupatgional employment trends to the year 2000. Monthly Labor Review. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office.